THE VETERINARY RECORD

A Weekly Journal for the Profession.

No. 983. MAY 11, 1907. VOL. XIX

THE REGISTER.

The Register of Veterinary Surgeons is issued once a year, and its appearance is generally quickly followed by complaints regarding its accuracy, both from members of Council and the rank and file of the profession.

This year's issue was published some time ago, and we have since heard the usual expressions of dissatisfaction. It must be admitted that the present Register, like so many of its predecessors, leaves much to be desired on the score of reliability.

It is also unfortunately true that many of its undeniable inaccuracies have been chiefly caused by the carelessness of individual members. We have no wish to dwell on the matter unduly; the ease with which any practitioner may ensure official cognisance of his correct postal address, and the culpability of not doing so, have already been frequently alluded to in these columns. But just at present, there seems to be good reason for calling attention to the subject once more.

At the last meeting of Council it was decided to overhaul the Register, with regard to qualified and registered men alike. A small committee was formed for the purpose, which will report to the Council at its next assembly. Spasmodic efforts of this kind have been made before, but the present revision really seems likely to be much more thorough and searching than some former ones have been. Should that be the case, there is trouble in store for not a few of our members, unless they take steps to avert it.

We confess to feeling very little sympathy with a member who, having lost his position on the Register solely through his own negligence, is confronted with the trouble and expense of regaining it. Still, we may again remind those whom it may concern that a short letter to the Registrar may save much future embarrassment—and that a penny stamp is really a less serious outlay than a guinea for re-registration.

MAGISTERIAL DICTA.

"As to the way in which the police gave their evidence, he had no cause for complaint. Of course, they were trained and expert."

"And as experts' evidence, you regard it with suspicion?"

"I believe, of course, the police want watching. *So do magistrates.*" (Laughter.)

The above is an extract from the evidence which Mr. Horace Smith, the magistrate to whose unwarranted treatment of a professional witness we called attention last week, gave before the Police Commission. We italicise the final sentence, which seems to have afforded some amusement to the hearers. Few of these, probably, knew how excellently the worthy stipendiary himself, only a few days before, had exemplified the truth of his words. We reprint this refreshing tit-bit from *The Star* with feelings of the most sincere pleasure. Last week we were obliged to comment upon some regrettable remarks which Mr. Horace Smith, misled by an imperfect knowledge of the subject he was considering, thought fit to make from the bench. It is gratifying, therefore, to be able to call attention to his candid admission of magisterial fallibility—with which we entirely and cordially agree.

THE FIFTH OF JUNE.

We are now within a month of the annual general meeting, which at present offers no prospects of excitement. No acutely controversial question is before the profession just now, and the election of Council appears likely to be a very quiet one. Still, it would be well to closely scrutinise such election addresses as appear, and to give due consideration to the filling up of the voting paper—for a candidate, once elected, is entrusted with the many and varied responsibilities of office for four years. We may also remind members that the hour of the annual meeting has been altered to 2 p.m. for the convenience of provincial practitioners.

OBSERVATIONS ON THE MALLEIN TEST.

By WALTER JOWETT, F.R.C.V.S., D.V.H., Department of Agriculture (Veterinary Branch) Cape Town.

How soon after a first test with mallein in a glandered subject, may one obtain a second reaction?

It is generally advised that when re-testing doubtful reacters, an interval of four to six weeks should be allowed to elapse between the first and second injection of mallein, although Hunting (1) "has not found that one injection of mallein in a glandered horse has much effect in spoiling the reaction to a second test." He considers "an interval of a fortnight quite sufficient, and has often seen a good reaction follow a test repeated after an interval of only a week."

Smith (2) also observes that "in doubtful reacters it is well to wait for three or four weeks before repeating the test, but under the exigencies of military service inoculations have frequently to be repeated without any delay and are found quite satisfactory. In such cases double doses are often employed."

During the past few months it has fallen to my lot to test with mallein a considerable number of animals (nearly 200)—both horses and mules. Being desirous of ascertaining *exaetly* how soon after the first inoculation of mallein a second reaction could be obtained in a glandered subject, I conducted a number of experiments the details of which are included in the following short notes:—

Horse No. 2 First Test. Mallein 1 c.c.

Temperature At inoculation.	9,	12,	15,	18,	21,	24,	36,	45,	48 hours after
101·8	101·4	101·6	102·8	104	103	102·6	101·4	102·8	102
Local Reaction.	About 3in. × 3in. Painful. sharply defined.		Slight increase in size.				Size 4in. × 4in, extremely painful, well-defined, corded lymphatic leading from swelling.		

The local reaction was still in evidence 63 hours after inoculation.

CASE No. I.

Horse No. 2.—An aged grey gelding. Height about 15 hands 1 inch. Condition fair.

Had been in close contact with a visibly glandered subject. Mallein 1 c.c. injected subcutaneously neck region, left side.

Result.—A distinct "double" reaction (*i.e.*, both local and general) indicating that the animal was the subject of glanders.

Decided to observe the effect of a double dose of mallein injected on the opposite side of the neck 48 hours after the first injection.

Horse No. 2. Second Test. Mallein 2 c.c.

Temperature At inoculation.	9,	12,	15,	18,	21,	24,	38 hours after.
102	101	102	102·6	104·2	103·6	103	102·4 *Destroyed.*
Local Reaction.	Well marked about 3in. × 3in., painful		Increased in size to about 4in. × 4in. Corded lymphatics leading from swelling, which was well defined and extremely painful to pressure.				Swelling undiminished in size

Result.—Again a decided double reaction.

Post-mortem conducted immediately after death.

Lungs. On palpation many "shot-like" nodules were detected scattered under the pleural surface of the lungs and throughout the substance of the latter.

The apex of the left lung was consolidated, and on sectioning with the post-mortem knife a quantity of purulent material gained exit. On sectioning the lungs a considerable number of glanders nodules were observed; these varied in size from that of a pin's head to a pea or even larger. Some of the smaller nodules were surrounded by a hæmorrhagic zone, whilst others, slightly larger, had a whitish opaque peripheral portion and contained in their centres a yellowish white, dry crumbling material which could be picked out by means of the point of a small scalpel. The periphery of the nodules, however, merged into the surrounding lung tissue and could not be enucleated therefrom.

One large calcareous nodule was observed in the left lung—this was quite easily "shelled out" from the surrounding tissue.

The bronchial glands were somewhat enlarged and on section there was disclosed in their interior a number of small yellow-white nodules about the size of a pin's head.

The mesenteric glands and other organs examined were to all appearance quite normal.

Inoculation of Experimental Animals.—In order to verify the diagnosis of glanders two guinea pigs were inoculated with material from the lungs of Case No. 1.

Guinea-pig No. 1 received intraperitoneally 0·5 c.c. of pus from the apex of the left lung. This animal died forty-eight hours after inoculation and from the heart's blood was obtained a streptococcus in pure culture.

Guinea pig No. 2.—Received intraperitoneally an emulsion in sterilised water of three of the nodules (presumably glanderous) removed from the lungs.

This animal presented well marked symptoms of orchitis (Straus's reaction) and died on the 9th day following inoculation.

The presence of the B. mallei was subsequently detected in the lesions.

REMARKS.

This horse was undoubtedly the subject of glanders infection.

A well marked local and general reaction was manifested to the injection of 1 c.c. mallein, and again forty-eight hours later when the test was repeated.

Post-mortem examination revealed the presence of glanderous lesions, and the *exact* nature of these was placed beyond dispute by the subsequent inoculation of experimental animals.

Horse No. 117 First Test. Mallein 1 c.c.

Temperature At inoculation.	12,	15,	18,	21,	24,	36,	40,	43,	48 hours after
100·4	102·4	103·4	103	102	103·4	103·4	103	102·6	102·4
Local Reaction.	2in. × 2in. Painful	At 18th hour distinctly increased in size.		4in. × 4in. Painful, well defined.		Slight increase in size. Very painful, well defined.		At 48th hour increased in size to about 5in. × 5in. still well defined, and very painful to the touch.	

At the 69th hour after inoculation the local reaction showed no diminution in size.

Case No. II.

Horse No. 117. A chestnut gelding, aged seven years, height about 14 hands 3 inches. Condition good.

Had been in close contact with a visibly glandered horse. Mallein 1 c.c. was injected subcutaneously in the neck region on the left side.

Result.—A well marked reaction, both local and general. In order to ascertain the effect of a second dose administered soon after the first, 2 c.c. mallein was injected on the opposite side of the neck (right) 48 hours after the first inoculation.

Horse No. 117 Second Test. Mallein 2 c.c.

Temperature At inoculation.	12,	15,	18,	21 hours after
102·4.	103·2	104·4	103·8	103·6 *Destroyed.*
Local Reaction.	3in. × 2in. Painful, well defined.	At 21st hour the local reaction had increased to 4in. × 3in. Extremely painful. Well defined.		

Result.—Again a distinct local and general reaction.

Post-mortem conducted immediately after death revealed the presence in both lungs of undoubted glanders nodules. It was evident that the infection had been fairly recent. The majority of the nodules examined showed a distinct peripheral hæmorrhagic zone.

The bronchial glands were enlarged, and contained in their substance a few yellow nodules the size of a pin's head.

The mesenteric glands and abdominal organs were apparently normal—the same remark applies to all other organs examined at the autopsy.

Remarks.

In this case it would have been decidedly better to have delayed retesting until the temperature, elevated in consequence of the first injection of mallein, had fallen to normal, but unfortunately circumstances did not permit of a longer delay. It is of course always inadvisable to test with mallein a subject with an initial temperature of more than 102°—however, in the subject of this experiment the primary temperature of 102·4 did not interfere with the result—an elevation of 2° followed the injection, nevertheless it is probable that a more decided thermic reaction would have been evinced if the primary temperature had been below 102° F.

Horse No. 101 First Test. Mallein 1 c.c.

Temperature At inoculation.	12,	15,	18,	21,	24,	36,	48 hours after
101·2	101·6	105	103·2	103	102·6	101·2	101·2
Local Reaction. Practically absent, very small indeed—about 1 inch. in diameter. Slightly painful on pressure.						Neither increased nor diminished in size. At 60th hour still perceptible. At 72nd hour after inoculation had quite disappeared.	

Case No. III.

Horse No. 101. An aged chestnut gelding, height about 15 hands. Condition fair.

Animal had been in close contact with a clinical case of glanders (*i.e.* one showing visible symptoms). This subject had been in owner's possession upwards of three years, and during that time had never been inoculated with mallein.

Mallein 1 c.c. was injected subcutaneously in the neck region, left side.

Result. — A distinct thermic, but practically no local reaction followed the inoculation. Classed as very suspicious and decided to re-test. Consequently mallein (2 c.c.) was injected on opposite side of neck forty-eight hours after the first inoculation.

Horse No. 101 Second Test. Mallein 2 c.c.

Temperature At inoculation.	12,	15,	18,	21,	24,	36,	40 hours after
101·2	104·6	104·2	102·8	102	101·6	101·4	101 *Destroyed.*

Local Reaction. Very small—about 1½ inches in diameter. Slightly painful on pressure. No increase in size up to 40th hour, when animal was destroyed.

Result.—Again a well marked thermic, but practically no local reaction.

Post-mortem conducted immediately after death revealed typical glanderous infection of both lungs. Innumerable "shot-like" nodules were present. They could not be enucleated from the surrounding lung tissue. No hæmorrhagic zone was detected around any of the nodules examined. The size of the lesions averaged that of a small pea, many were fibroid, especially at their peripheral portion, and contained in their centres a dry yellow crumbling material. A few were calcareous. No nodules were detected in the bronchial lymphatic glands. Other organs apparently free from lesions of glanders.

REMARKS.

At both the first test and the second, conducted forty-eight hours after the first, a well marked general reaction was shown, but practically no local reaction, and yet post-mortem examination revealed the fact that the animal was undoubtedly the subject of glanders.

Horse No. 111 First Test. Mallein 2 c.c.

Temperature At inoculation.	12,	15,	18,	21,	24 hours after
100·6	101·2	102·8	101·6	101·2	101

Local Reaction. Very small—barely 2 inches in diameter. Not well defined. Slightly painful on pressure. At 36th hour after inoculation no increase in size. At 48th hour had disappeared.

CASE No. IV.

Horse No. 111. An aged dark chestnut gelding, height about 15 hands. Condition fair.

This animal has been tested with mallein by another veterinary surgeon five months prior to my examination. It appears the horse then exhibited a doubtful reaction, inasmuch as quarantine was imposed for a period of four weeks, when the animal was re-tested and discharged as non-glandered.

In view of the fact that the subject had already undergone two mallein inoculations it was decided to *commence* in this case with double the usual dose of mallein. Consequently 2 c.c. were injected subcutaneously on the left side of the neck.

Horse No. 111 Second Test. Mallein 3 c.c.

Temperature At inoculation.	12,	15,	18,	21,	24,	36 hours after
101	103	102·8	102·4	102·4	102	101·2 *Destroyed.*

Local Reaction about 2in. × 2in. inches. Fairly well defined. Painful. At 36th hour slightly increased in size.

REMARKS.

Local reaction by no means typical as a glanders reaction. Temperature a distinct rise of 2·2°F. followed inoculation. In view of this fact classed the reaction as suspicious and decided to repeat the test, injecting a larger dose of mallein on the opposite side of the neck. Consequently *only twenty-four hours after the first inoculation* 3 c.c. of mallein was injected.

Post-mortem.—Both lungs contained typical shot-like glanders nodules, not very numerous—about a dozen in right lung and not quite as many in left. Around none of the nodules examined could a hæmorrhagic zone be detected. Many of them were white and translucent, and a number were calcareous. Bronchial glands were to all appearance normal, mesenteric glands and other organs apparently normal.

REMARKS.

In neither the first or second test was the local reaction by any means typical of glanders, but a distinct rise in temperature of 2·2° F. followed the first inoculation, and again when the test was repeated twenty-four hours later. In view of the history of the case, in the writer's opinion this thermic reaction to the inoculation could be accepted as a glandered reaction and subsequent post-mortem justified that conclusion.

In dealing with the above mentioned outbreaks the animals which had been in close contact with visibly glandered subjects, even when they failed to react to the first test of mallein, were nevertheless submitted to a second inoculation one month later. The object of this was, of course, to enable those which presumably might have been infected only two or three days prior to the first inoculation, to

develop lesions of glanders before undergoing the second test.

It is admitted that animals very recently infected with glanders may fail to react to mallein—*exactly* how soon after injection a horse will react is not known with any absolute degree of certainty. In certain experiments conducted by Nocard a reaction was obtained when a dose of mallein was injected six days after the ingestion of a culture of the bacillus mallei. This question is of extreme importance to the practitioner, and should form the subject of future experiment.

But to return to the subject, all animals which had had a reasonable chance to contract the disease (glanders) and failed to react to a first test of mallein were nevertheless submitted to a second one month later. At this second testing larger doses of mallein were invariably employed, if 1 c.c. had been injected at the first test then 2 c.c. were given at the second—if 2 c.c. were employed at the first, then 3 or even 4 c.c. were administered at the second and so on.

One horse at the first test with 1 c.c. gave *not the slightest* local reaction and of course no temperature reaction. A week later, whilst testing certain other suspects which had been traced to the same district, I availed myself of the opportunity to re-test this subject—he now received 2 c.c. and failed again to give even the slightest local or thermic reaction.

A month later 5 c.c. were injected, and now at the site of inoculation there formed a swelling measuring about two inches in diameter, but this was not well defined, disappeared about the twenty fourth hour, and there was absolutely no rise whatever in the animal's temperature.

This case is quoted merely to show that even with large doses of mallein in healthy animals no temperature reaction occurs, although a slight local swelling may appear at the site of inoculation, but this is only what one would expect after injecting a large dose of a potent vaso-dilator such as mallein. On one occasion I availed myself of the opportunity to observe the effect of a mallein injection on an undoubted case of purpura. Here an *enormous* œdematous swelling appeared at the site of inoculation, but even in this case there was practically no fluctuation in the animal's temperature—certainly there was not the slightest elevation. Later a post-mortem examination was held on this subject, and of course no glanderous lesions were detected in any portion of the carcase.

This case is of interest in bearing out the statement of Cadéac that "the injection of mallein (a vaso-dilator) aggravates the phenomena of petechial fever and determines enormous local exudations and engorgements."

The Eighth International Congress (1905, Buda-Pesth) passed the following resolution in regard to the reaction to mallein—"The local typical infiltration at the point of injection is a certain indication of *glanders even when rise in temperature and the general organic reaction fail.*"

Haan and Hoogkamer (3) in an article recently published, go to the other extreme and "consider *only the temperature reaction as a reliable indicator of the disease.*"

Now it is not the object of these somewhat disjointed and scattered notes to throw discredit on the local reaction—on the contrary I consider the latter a valuable *aid* in confirming the diagnosis when a doubtful thermic reaction follows an injection of mallein.

But if one had trusted alone to the local reaction in cases 3 and 4 (quoted in the above mentioned experiments) then one would have passed as non-glandered, subjects shown by subsequent post-mortem examination to be badly infected; and moreover one of these subjects had been so passed as non-glandered by another veterinary surgeon presumably because it failed to exhibit a well marked local reaction or because it failed to give both a local and a general reaction, and yet the post-mortem showed that in all probability the animal was infected with glanders at the time of the first testing.

For my part I am inclined to throw in my lot with those few observers who attach more importance to the general than to the local reaction to mallein as diagnostic of glanders.

Briefly stated the object of the present note is to call attention to the following points:—

1. That when re-testing doubtful reacters it appears unnecessary to delay the second test for a period longer than a few days, or in other words a period sufficiently long to allow of the return to normal of the temperature elevated in consequence of the first injection of mallein.

2. That of the two reactions, thermic and local, the former appears to be the more delicate and precise and the one less likely to lead to erroneous conclusions.

In conclusion it is to be regretted that in the present note but few cases have been quoted in support of the points enumerated. It is, however, the intention of the writer to further study the subject as opportunity occurs, and it is hoped that other practitioners will also record their observations, not only for the benefit of the present writer but also for that of other veterinarians to whom the subject cannot fail to be of interest and importance.

LITERATURE.

1. HUNTING.—"Glanders." Proceedings of the National Veterinary Association, 1902. *The Journal of Comparative Pathology and Therapeutics*, vol xv., 1902, pp. 215-244.
2. SMITH, Col. F. A Manual of Veterinary Hygiene, 2nd edit., 1906, pp. 562-563.
3. DE HAAN and HOOGKAMER.—*Zeitsch f. Hygiene*, vol. lv., 1906, No. 1, p. 133). Translated and published in *The Journal ofthe Royal Institute of Public Health*, Jan., 1907, pp. 44-45.

The Council of the City of Chester invite applications for the position of Chief Inspector of Nuisances, at an inclusive salary of £150 a year. The appointment will be for three years, and will be subject to the approval of the Local Government Board. Candidates must have obtained, by examination, the Certificates of the Royal Sanitary Institute for (1) Sanitary Inspector, and (2) Meat Inspector.—*M.T.J.*

PERINEAL HERNIA FOLLOWING CASTRATION FOR ENLARGED PROSTATE GLAND.

By George P. Male, M.R.C.V.S.

The subject of a rather interesting condition was an old Aberdeen Terrier—a very great pet—who in the early part of last year was troubled with an enlarged prostate gland. He had the usual symptoms, viz., difficulty in passing urine, great pain and straining on defæcation, a straddling gait, pain on manipulation, etc. This got worse, and in April '06, castration was resorted to. The operation appeared to be quite successful until Oct. 5th when he was again brought to me with the history that he was unable to urinate and seemed in great distress. The catheter was used but it was impossible, even using one of small size, to pass it beyond the pelvic brim, and feeling a large swelling at the side of and below the root of the tail it occurred to me that the bladder was displaced. On performing laparotomy this proved to be the case, but it was impossible to replace it until the urine had been removed by means of a cannula and trocar; which was done through the skin in the perineal region. The bladder however soon returned to its original position and had to be repeatedly punctured, for when urine accumulated to a certain amount it pressed upon the urethra and caused an obstruction. During the next five months urine was removed ten times in this way without any ill effects, and on one occasion on three successive days, care being taken that the bladder was not punctured in the same spot each time, and of course the usual antiseptic precautions being adopted. On Feb. 27th I decided to attempt an operation, performed laparotomy, and endeavoured to suture the bladder to the abdominal walls by three ligatures through the vesicular ligaments. The peritoneal folds however were too slender, and when the bladder became distended the sutures unfortunately tore through. Although this was necessarily a rather severe operation he quickly recovered and remained in excellent health until last Saturday, April 20th, when there was a recurrence of the usual symptoms and he had to be punctured again and also on the two following days. It was then decided for humane reasons to destroy the dog. A post-mortem examination being made the bladder was found immediately under the skin in the perineal region lying freely in the sac formed there. The vesicular folds of peritoneum were in a tense condition and there was a tear on the right side of the rectum, but whether this was done during operation or previously I am unable to say. It appeared to be quite easy for the bladder in its contracted condition to gain the back of the pelvis. It could clearly be seen where the bladder had been punctured, the inner surface showing small red spots of granulation tissue. It has occurred to me that the dilation or rupture of the peritoneum might have been due to straining from the diseased prostate, and that the displacement of the bladder was delayed until the prostate had become sufficiently atrophied to allow it to pass; but perhaps some other explanation will be forthcoming from some who have had similar cases.

ABSTRACTS FROM FOREIGN JOURNALS.

Clinical and Experimental Researches on Pernicious Anæmia in the Horse (Infective Typho-Anæmia), By H. Carré and H. Vallée At Research Laboratory of the Alfort School.

(*Continued from p. 712.*)

Nature of the virus.—Our investigations on this point have been on the blood of infected animals.

First we demonstrated that the *quantity* of blood inoculated has no appreciable influence on the severity or progress of the disease. Our first intravenous inoculations of defibrinated blood or serum, in heavy doses—750, 300, 250, and 200 c.c. gave us no better results than the later attempts, whether subcutaneous or intravenous, in much smaller doses.

Horse, No.	Inoculation.	Doses.	Duration of malady.
1	Intravenous	750 c.c.	57 days.
3	,,	300	15
5	,,	250	23
7	,,	20	30
8	Subcutaneous	5 c.c.	27
9	,,	20	15
10	,,	10	27
11	,,	1	90
12	,,	200	90

With the object of reducing the cost of the experiments, we tried to inoculate smaller and more manageable animals. We inoculated by all methods and in various dosages, bovines of various ages, sheep, goats, dogs, rabbits, guinea pigs, mice, and white rats, but with no result. The most virulent strains of blood from the horse were always innocuous. The ass alone appears, in some cases, susceptible. [One successful case only: an old jenny, belonging to the laboratory, showed a temperature of 2·6C. in 8 days, with usual symptoms of typho-anæmia. The symptoms subsided in a week, but reappeared six weeks after and again subsided. The animal is still in perfect health.]

Blood withdrawn, with due precautions, from a sick or dead animal, although fully virulent does not usually give any culture, and under the microscope shows nothing at all resembling a parasite.

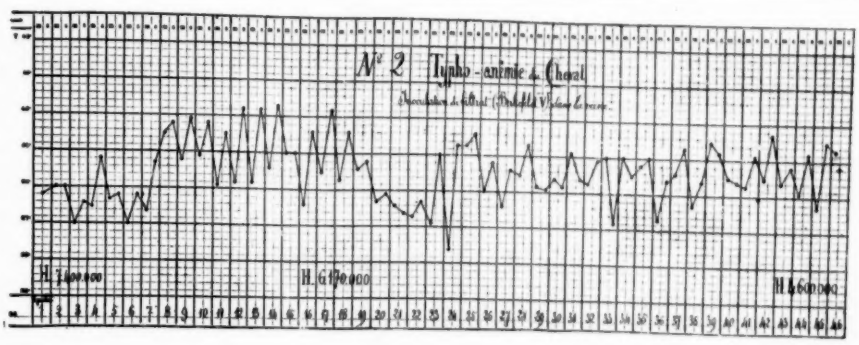
In very rare cases it is possible to isolate from the blood and from lesions, in the cadaver, a bacillus with very distinct characters, non-pathogenic on inoculation to fresh horses, or to those already anæmic.

The impossibility of demonstrating a parasite in virulent blood, in any sort of culture medium led us to believe that we had to do with an ultra-microscopic microbe which would pass porcelain filters, and the following experiment showed indisputably that this was a fact.

With a specially made tube, a little more porous than a Berkfeld V., we filtered a mixture of 500 c.cm. of serum from a case and 2000 c.cm. of a dilution in physiological serum of an extremely virulent culture of ovine Pasteurella. An opalescent liquid resulted, which inoculated in the veins and the peritoneum of rabbits

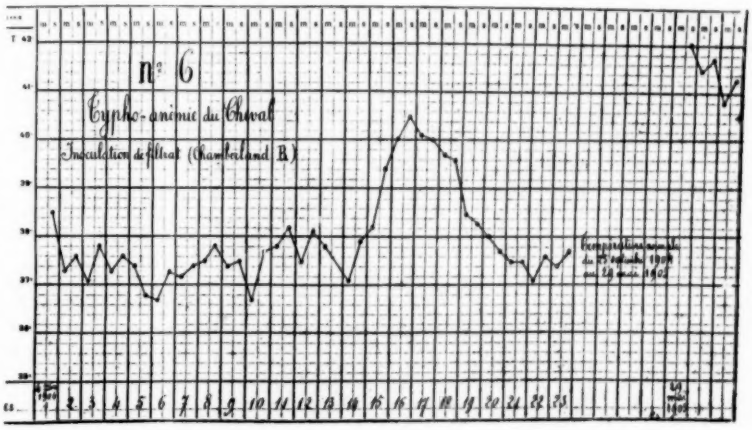
and guinea-pigs in doses of 20 cm. produced no effect—the filter, then, had retained the very minute ovine Pasteurella.

A horse in perfect health was inoculated in the jugular with 500 c.cm., *i.e.*, 100 c.cm. of the infective serum. After six days incubation, he had all the signs of anæmia absolutely characteristic of the acute form, and died in 46 days with extensive typical lesions of the disease. Temperature chart is here given. (No. 2).



Here is another equally instructive experience. We filtered (Berkf. V) a mixture of 20 c.c. of blood from a sick animal, 40 c.c. of distilled water and a culture of ovine Pasteurella. No cultivation could be obtained from the filtrate. We inoculated a perfectly healthy horse under the skin with 3 c.c. only. Eighteen days later hyperthermia appeared, with typhic condition of the conjunctiva. The red corpuscles fell in 30 days to 3·700000 and death followed in six months. The ordinary lesions of the disease were found post-mortem.

A mixture of blood and physiological serum 1 : 4 gives the same results through a Chamberland F. or B. One of our experiments, inoculated with a filtrate from a filter F. was dead in four months with most typical lesions. Another, from filter B. succumbed in nine months: it showed on the 14th day a very severe typical outburst, followed by a very long remission, 221 days, of normal temperature: suddenly a sharp attack developed, temperature went up to 42°, and he died in three days. (Chart No. 6.)



Resistance and preservation of the virus.—Heating to 58 C. for an hour destroys the virulence of virulent blood serum. One of our horses received 40 c.c. of this serum under the skin and lived for many months without showing any symptom.

Dessication in vacuo at ordinary temperature does not affect the virulence. After 10 days the product of the dessication of a single cubic centimetre of virulent serum killed a vigorous horse in 30 days after subcutaneous inoculation. After seven months it was inert.

Age appears to modify the virulence very slowly. Infective serum kept for a month in the laboratory, in diffused light, was still very virulent in doses of 5 to 10 c.c. inoculated under the skin of two horses, which succumbed to the typical disease in 27 and 28 days respectively. Under the same conditions virulent blood kept for three months proved innocuous.

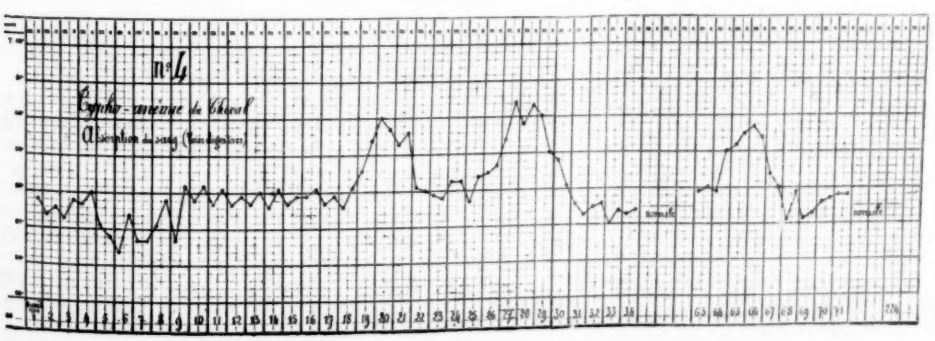
Putrefaction.—Even very ammoniacal substances such as dung heaps and urines do not appear to affect the virulence.

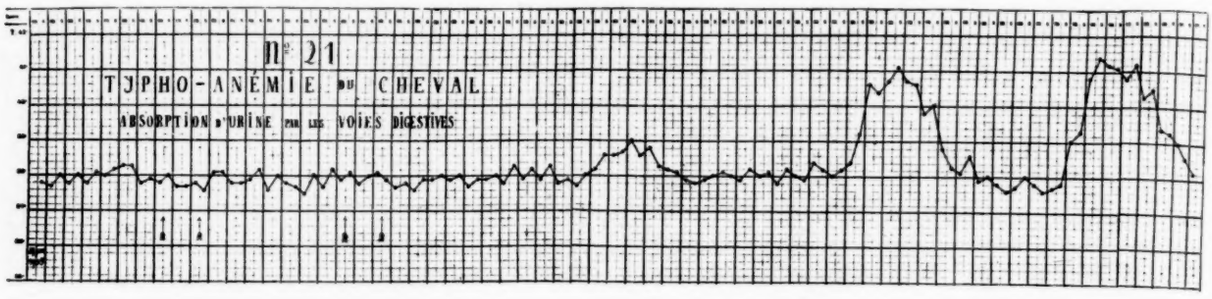
We mixed 20 c.c. of virulent serum in a litre of urine from a normal horse, and buried the flask in a dung heap on August 10, 1905. On the 25th, 27th, 30th Oct., and 2nd Nov. we administered each day 200 c.c. of this putrefied mixture per orem to a vigorous horse. From Nov. 5 grave symptoms of typho-anæmia appeared, followed by a typical evolution of the disease.

Methods of Penetration of the Virus.—The foregoing experiments have evidenced the extreme facility of infection by intravenous and subcutaneous methods. The following shows clearly enough that the digestive tract is one of the readiest means of access of the virus.

On the 9th Aug., 1904, we gave per orem to vigourous cob, 20 c.c. of defibrinated blood from a subject infected with filtrate. Eighteen days later the first symptoms appeared of an attack of the sub-acute type, with remissions, which killed the animal in six months.

[Chart No. 4.]





Another experiment gave identical results, and at the same time established the virulence of the urine.

An old cab horse in very good condition, received with his food each day 200 c.c. of the urine of a sick animal, on June 24, 26, July 4, 6, 1905. The first symptoms presented on the 12th day after the last infected feeding: the malady developed in the recurrent form, and the animal succumbed in five months. [Chart No. 21. The arrows indicate the dates of the infected feedings.]

Two other experiments with subcutaneous inoculation of urine from different sources also yielded positive results.

To sum up: our experiments have shown that the blood and urine of infected animals are virulent: and that infection may be conveyed by the digestive tract, by subcutaneous or by intravenous inoculation.

(To be concluded.)

MILK AND DAIRIES IN EDINBURGH.*

During the year this important branch of the Department's work has received careful attention.

There are at present on the Register 464 dairy shops, being a decrease of four during the year.

Three thousand five hundred visits were paid during the period under report, and, in 86 cases, it was found necessary to order dairy premises to be painted and cleansed. This work was invariably promptly carried out. In other 17 cases, the regulations in regard to the required standard of cleanliness were not strictly observed, but a warning in all of those sufficed to bring about satisfactory results.

Seven contraventions of the Dairy Regulations were such as to necessitate proceedings being taken against dairy-keepers. These comprised three cases in which the premises were found dirty, after the responsible persons had been previously warned; three cases in which it was found that clothing was washed in dairies; and one in which milk vessels were found stored in a sleeping apartment.

Each of the persons responsible for these conditions was required to appear at court, and all were convicted and fined.

Special attention has been recently devoted to an investigation into the bacteriological condition of the city's milk supply, and, in conformity with instructions received from your Public Health Committee, a large number of samples have been taken, and submitted to Professor Hunter Stewart at the Usher Institute for examination. These samples were procured after all preliminary precautions had been observed, and represented 64 separated supplies from country districts, as well as a large number from city byres.

*From Dr. Williamson's Annual Report to the Lord Provost and Corporation.

A report of the result of the investigation by Professor Hunter Stewart has recently been presented by him to your Committee, and a further report has also been presented from this Department, embodying certain suggestions which appear to follow the result of that investigation.

Report on the Bacteriological Examination of Samples of Milk, as delivered to the milkshops in the City of Edinburgh.

"Usher Institute of Public Health,
University of Edinburgh,
February, 1907.

The samples of milk were taken by the Inspectors of the Sanitary Department. Sterilised, wide-mouthed bottles, enclosed for protection in cylindrical copper cases, were supplied to the Inspectors at the Usher Institute. Into these bottles the milk was directly poured from the milk cans, and the information as to source, time of milking, and time of taking samples was marked on the labels of the bottles. In every case the sample was a mixture of the milk of several cows, and the number of cows was also stated on the label, which was signed by the Inspector. The bottles were brought to the Institute in the copper cases.

In all, 83 samples were taken, 21 of these being from byres within the city boundary, and the remaining 62 from sources outside the city. Of these latter 18 were delivered by rail, the remainder by van. The average amount of each sample was 1 litre, or about 36 fluid ounces. The examination of the milk was begun as soon as possible after receipt of the sample, its temperature being in every case determined.

Milk, as secreted in the mammary gland of the healthy cow, is practically free from micro-organisms, but it is far from being so when delivered to the consumer. In the samples now reported on, these micro-organisms gain entrance from the hide and udder of the cow, the hands and clothing of the milker, the air of the byre, and the milk pails and tins in which the milk is dispatched. The cleanliness in production may be approximately measured by the amount of dirt deposited from the milk on standing, and subsequent certrifuging, as recommended by Dr. Houston, in his 'Report on the Bacteriological Examination of Milk in relation to Milk Standards' presented to the London County Council in 1905, and in this investigation this process was adopted. As a basis of comparison for his investigation of milk from various sources, Dr. Houston used the milk from 20 separate healthy cows, collected in the following way:—'The whole of the milk (exclusive of the "fore-milk") from each of the separate cows was, in each case, collected in a clean pail. The milk was next strained through a clean strainer into a second clean pail. After stirring with a sterile glass rod, a portion of the milk was poured into a sterile glass-stoppered bottle. The bottle was placed in a box containing ice, conveyed rapidly to the laboratory, and examined immediately. Before milking, the cows' udders and teats were washed, and the milker washed his hands and put on a clean blouse. No unreasonable precautions were taken; they were simply those which attention to the ordinary rules of cleanliness would naturally suggest.' 'I do not regard the condition as representing the high-water mark of efficiency as regards excluding all external sources of pollution from the milk.'

The total number of micro-organisms in milk at a given time depends not only on the number gaining entrance,

but also, and very specially, on the time that has elapsed since the milking, and the temperature of the milk during that period. Milk is a most suitable substance for the growth of micro-organisms, and, as it has practically the temperature of the cow when it is milked, unless it is cooled after milking it continues at a temperature most favourable for the growth of the micro-organisms. Two portions of the same milking, one of which has been at once cooled to, say, 50 F. will contain a much smaller number of micro-organisms when delivered to the retailer than the other which has not been cooled. It was impossible, therefore, to judge of the amount of original pollution of a milk from the total number of micro-organisms present, unless its temperature has been reduced to, say, 50 F at time of milking, and kept at that temperature.

The majority of the micro-organisms occurring in milk are innocuous; still, they have definite physiological actions, one of which is the production of lactic acid and the consequent souring of the milk when kept for a time. Portions of all the samples of milk were kept at the temperature of the room, and examined from time to time to detect the first appearance of souring. The railway milks soured no sooner than the other samples, though, on an average, they had been milked 10 hours earlier. This is the effect of the cooling after milking.

Special Micro-organisms.—Both human excrement and cow dung contain certain bacilli in great number, and their presence, especially if numerous, in water or in milk is recognised as due to one of these sources of contamination. Two of these, the Bacillus Coli Communis and Bacillus Enteritidis Sporogenes, have been specially studied, as they are believed by many to have a causal relation to certain forms of diarrhœa, etc. The former multiplies quickly in milk, and the latter much less so, if at all. Hence the *number* of Bacillus Enteritidis Sporogenes present may be taken as a measure of *original* pollution of the milk.

Streptococci.—Under this heading is included a large number of varieties, some of which are harmful and some not. They are found in the human subject, in the mouth and in the fæces; and in cows, in the dung and in many diseased conditions of the udder, etc. Several epidemics of sore throat, etc., have been ascribed to the dietetic use of milk containing specific streptococci. But it is very difficult indeed to separate and identify the harmful varieties from the other.

By appropriate methods, a search was made for the presence of the Bacillus Enteritidis Sporogenes, the Bacillus Coli Communis, and of Streptococci, and the results are shown in detail.

Acid-fast Bacilli.—Various bacilli having this character may occur in milk, but the importance that attaches to this group is due to the fact that the bacillus of tuberculosis belongs to it. The other members of the group may be found in manure and on certain grasses, etc., but these have no connection with the causation of tuberculosis. When acid-fast bacilli are found in the centrifuged deposit of a milk, it is necessary to inoculate susceptible animals, *e.g.*, guinea-pigs, with the deposit in order to determine whether they are tubercle bacilli or not.

A careful search was made for the presence of these bacilli. After allowing the milk to sediment for 48 hours, and removing this sediment, the entire litre of milk was centrifuged for half an hour in a large centrifuge driven by electricity, and revolving at the rate of 2500 per minute. The small amount of deposit so obtained was added to that got by sedimentation. The deposit was carefully searched for acid-fast bacilli, and these were found in none of the samples. This absence of the tubercle bacillus is most satisfactory. The deposit was not injected into animals.*

From this investigation, it is evident that greater cleanliness in the prodnction of the milk, and its cooling in all cases immediately after milking, are most desirable. The average bacteriological condition of the milk, as supplied to the milk-shops of Edinburgh being known, it remains to similarly study milk as supplied to the consumer after storage in the milk-shop.

I took advantage of the opportunity that these carefully collected samples of milk presented to estimate the amount of butter-fat in most of them. The following is the average percentage of butter-fat in each of the three divisions of supply:

	Average Percentage of Fat.
Railway Milk (Evening Milk)	3·38
Country Milk (Morning Milk)	3·22
Town Milk (Morning Milk)	3·19

(Signed) CHARLES HUNTER STEWART."

MILK SUPPLY.

In reference to Professor Hunter Stewart's Bacteriological Report on the large number of samples of milk submitted to him for examination, I beg to make the following observations:—

(1) Perhaps the most satisfactory result of the whole investigation is to prove the entire absence of any evidence of tuberculosis in connection with the herds from which the milk samples were obtained. When it is remembered that 83 samples in all were examined, and that these were taken at random from both city and country supplies, the result in this respect must be regarded as highly satisfactory.

(2) The organisms found present in the milk are chiefly those associated with a dirt and manurial origin, and as these sources of contamination largely depend upon an efficient inspection and regulation of the milk supply, I would refer to a few suggestions which I have made from time to time with the view of preventing as far as possible such sources of contamination, in the absence of which I do not consider it probable that a higher standard of purity than is presented by the present bacteriological examination is likely to be attained. I think it well, however, that it should be recognised that this standard as revealed by the examination under report, is throughout very fairly satisfactory.

An investigation of a somewhat similar nature was recently carried out by Dr. Houston at the instigation of the London County Council, and the results, as revealed there, were not anything like so satisfactory as those that have been obtained here. These latter clearly indicate that the inspection of the cows and byres both in the city and districts from which the city's milk supply is obtained can safely be regarded as being most satisfactorily conducted to the full extent of the existing regulations. It is in order that these might now receive the consideration of your committee that I refer to the following few matters in detail.

(*a*) In my report of 1905, I specially drew attention to the impossibility of expecting absolutely pure milk, free from manurial contamination, when such is drawn from cows which eat and sleep during their whole milk-giving period in the premises in which milking operations are carried out. I give an extract from my report in reference to this matter, and am still strongly of opinion that the recommendation made must be carried out, if better bacteriological results are to be obtained than those which are brought out by Professor Stewart's examination.

"It is considered advisable to direct attention at this time to the great necessity which exists for the introduction of a new regulation in regard to requiring the provision in all cases of a special "milking shed" where all milking operations should be conducted. It must be pointed out that all animals which are housed in city byres, remain confined in their stalls during their whole milk-giving period, which represents nine or ten months, and are not removed for any purpose whatever until the expiry of that time. It is evident, herefore, that however strict may be the inspection, or

* *Note.*—It has sometimes been found that tubercle bacilli were present in such small number in a milk that, though not detected in the centrifuged deposit by microscopical examination, injection into animals proved their presence, but in most of these cases the amount of milk centrifuged was small.

however much attention may be paid to general cleanliness, the conditions which must always remain present—even under the most satisfactory circumstances—are not in any sense favourable to the safeguarding of the purity of the milk. Milking operations carried out three times a day, and these are conducted in the stalls where the cows stand. It is almost impossible to imagine that amidst such surroundings milk can remain perfectly pure. There could really be no hardship entailed in making the requirement which is now suggested, and the advantages resulting would be very great. In the first place, the health of the cows would be improved by their being taken to the fresh air at least three times each day, and in the next, it is certain that their being milked where no source of contamination was present, could not fail to have a satisfactory effect on the cleanly and healthy condition of the milk supply."

(*b*) In the beginning of 1902, I drew attention by report to the dangers inherent to the use of milk from newly calved cows, specially in reference to the city cattle markets supply. It is to be borne in mind that in our city byres, there are nearly 3,000 cows, and that, practically it may be stated that the places of all these are taken each year by succeeding generations of animals which have newly calved. It would appear to be extremely desirable that some limit should be put upon the time which must elapse after calving, before the milk can be used for human consumption, and it was in order that such might be done that my report of five years ago was made.

In the light of that, it is interesting to record the fact that, within the past few months, there has been issued an exhaustive report by a Committee appointed by the Royal Institute of Public Health, to consider the best means of ensuring a clean milk supply to the consumer, and that one of the important conclusions which that Committee arrived at, was that "the milk of recently calved cows must not be used until three clear days have elapsed after parturition.

(*c*) The existing dairy regulations in several respects should, in the light of present-day knowledge and experience, be re-considered and brought up to date. One or two instances may alone suffice to indicate the necessity for such reconsideration.

Under the existing regulations no *direct* communication must exist between a milk-shop and a dwelling-house. This regulation is, of course, strictly interpreted, and leaves it possible for persons to dwell in the same premises as those in which they carry on the trade of dairy keeper, if their dwelling-room is separated by an intervening space or passage. So far as the possibility of contaminating the milk supply is concerned, the presence or absence of such passage is practically immaterial.

(*d*) Some alteration is necessary in the Dairy Regulations, so that it may be clearly laid down what articles may be sold in shops in which milk is stored. At present there is much confusion in regard to the interpretation of this regulation, with the result that, in many instances, a milk business is carried on in conjunction with the sale of a great number of other articles, the presence of which must, to a considerable extent, interfere with the cleanliness of the milk supply.

(*e*) There are various other matters which would fall to receive consideration in connection with the revisal of the existing Dairy Regulations, and it might be considered necessary, in addition, to endeavour, along with others who have frequently expressed strong opinions on the subject, to have the Dairies, Cowsheds and Milkshops Order so altered as it be no longer compulsory to register as milk sellers all applicants, irrespective of personal suitability and irrespective of the important question as to whether or not the premises are suitable for the purpose desired.

ELECTION ADDRESS.

To the Fellows and Members of the Royal College of Veterinary Surgeons.

Gentlemen,—I venture to offer myself as a candidate for the Council of the R.C.V.S. Should you do me the honour of electing me my best endeavours will be exerted in an effort to persuade other members of the Council that it is necessary to more carefully guard the privileges granted to us by our Charter, and to take a vastly more active part in the prevention of "quackery" in relation to our profession than they appear to have done or to be inclined to do.

It appears to be customary for a candidate to promise to do all in his power to further the interests of the profession should he be elected.

Gentlemen, it is for the purpose of endeavouring to protect and further those interests that I ask for your support.—I remain, yours obediently,

WALTER BURT, F.R.C.V.S.

Edward Street, Brighton.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

An ordinary general meeting was held at the Great Western Hotel, Reading, on the afternoon of Friday, April 26th. There were present: Messrs. R. Porch (President) in the chair; Percy J. Simpson (Hon. Sec.) J. C. Coleman, Wm. Hunting, W. G. Flanagan, G. P. Male, E. J. Mellett, W. Pauer, Albert Wheatley, Fredk. G. Samson, and Capt. W. N. Wright.

Letters and telegrams of apology for inability to attend were announced from Major J. A. Meredith, and Messrs. S. H. Slocock, Wm. Wilson, W. L. Harrison, H. C. Jagger, F. W. Hanks, James F. Simpson, A. L. Butters, J. S. Hurndall, G. E. King, R. F. Wall, J. A. Todd, E. L. Stroud, Jas. East, and Walter Western.

VETERINARY ARMY OFFICERS.

Arising out of the minutes, the Hon. Sec. reported that he had forwarded the resolution passed at the last meeting of the Association, on the proposition of Mr. Stroud, to the Council of the Royal College of Veterinary Surgeons; and read the reply, which was to the effect that the matter had been carefully considered, but that the Council did not see their way to take any action in the matter.

Mr. H. G. SIMPSON.

The HON. SEC. informed the meeting that with regard to the resolution sent to his cousin, Mr. H. G. Simpson (ex-President), he had received the following letter:—

Bacteriological Laboratory, Nairobi, B.E.A.
January 7, 1907.

Dear Mr. Secretary,—Will you please thank the members for their kind vote of thanks. I am afraid I hardly deserved it, as I ran away before my time was up. I am glad you are all flourishing. My remembrances to you all, and if you cannot fix on a place for a summer meeting, I invite you all to visit Nairobi, and combine business and pleasure in the "Land of Lions." There won't be much champagne, but lots of fun and plenty to see. With good wishes to you all.—Yours very truly,

HENRY G. SIMPSON.

ROYAL INSTITUTE OF PUBLIC HEALTH.

It was unanimously agreed, on the proposition of Mr. Mellett, seconded by Mr. Samson, that the Association send a delegate to the Conference, and allow him four guineas expenses; and in view of short attendance at this meeting the selection of the delegate be left to the Peesident and the Hon. Sec.

THE LATE Mr. FLANAGAN, JUNR.

The PRESIDENT said that he was sure they all noticed with great regret the next item on the agenda, which was "to report the death of the late Mr. W. Flanagan, junr." Mr. Flanagan had intended to be at their last meeting, but was prevented, and since then he had been taken away, to the regret of all the members of the Association. (Hear, hear.) He proposed a resolution of condolence with Mr. and Mrs. W. G. Flanagan, and the family.

This was carried *sub silentio*, all standing.

The Hon. Sec. informed the meeting that he attended the funeral, partly on his own behalf and partly as representing the Association; and also that, after consultation with the President, he ordered a wreath, which was sent in the name of the Society. This action was approved. The following letter had been received:

Great Western Hotel, Reading.
March 20th, 1907.

Dear Sir,—Allow me on behalf of my family and self to tender our best thanks for the sympathy shown to us in our bereavement, and for the wreath so kindly sent.—Faithfully yours,

W. G. FLANAGAN.

Percy J. Simpson, Esq.

NEW MEMBER.

Mr. REGINALD F. WALL, M.R.C.V.S. (who had been nominated by Mr. E. Lionel Stroud) was unanimously elected a member of the Association, on the motion of the Hon. Sec., seconded by Mr. Samson.

CARRIAGE OF INSTRUMENTS.

The HON. SEC. reminded the members that it was left at the last meeting to his father and himself to draw up a rule to meet the case of the carriage of the instruments belonging to the Association when they were forwarded direct from one member to another. It was not a big matter, and did not happen very often; and he thought they must leave it between the two gentlemen directly concerned to collect the money. He suggested the adoption of the following new rule:—

"V. In the event of a member being in possession of the instruments and receiving a message to forward them to another member he must do so at once. Half the cost of the carriage of the instruments between these members to be paid by the sender and half by the receiver. The receiver to send the instruments back to the Secretary carriage paid, unless otherwise notified."

The new rule was adopted on the motion of Mr. Coleman, seconded by Mr. Wheatley.

It was agreed, on the proposition of Mr. Flanagan, seconded by Mr. Mellett, that the next general meeting of the Association should be held at Henley-on-Thames.

MORBID SPECIMEN.

Mr. MALE (Reading) showed and described a highly interesting case of an old Aberdeen terrier which had been under his care, and which he had, from motives of humanity, destroyed after several operations in connection with a displaced bladder. He was heartily thanked for his exhibit and notes on the motion of the Hon. Sec., seconded by Mr. Wheatley.

SPRAINS IN HORSES.—By W. HUNTING, F.R.C.V.S.*

DISCUSSION.

The PRESIDENT said that as Mr. Hunting's paper had been sent out to all the members, it would not be read; but he was sure they had all been greatly interested in its perusal.

Capt. WRIGHT, A.V.D., opened the debate by thanking Mr. Hunting for his most practical paper on an important subject, which interested them all. He (Capt. Wright) had seen a good many sprains while in the service, and also amongst race-horses and hunters; and he could agree with everything Mr. Hunting had written except as to the treatment. He (Capt. Wright) had seen the best results he had been able to imagine from the immediate application of thick cotton-wool bandages and nothing else, taking the animal off his corn, putting him on sloppy bran and reducing him generally, and letting him remain either in slings or the loose box. Of course, as Mr. Hunting said, such bandages must be properly applied; and when so applied he had seen the best results. If it was put on very tightly, as it should be, of course great care must be exercised when the pressure was relieved, and that was a point in which a great many went wrong. After that he had found great advantage from firing—as he had seen it done at Chantilly—not deeply, but lightly and in lines very close together. The way it was done there with race-horses was to have the horizontal lines round the tendon as close together as possible; and the resulting blemish was very little indeed, the leg looking just as if it had been tightly bandaged. He had tried point-firing into the tendon, and also needle-firing; but the treatment he had spoken of had always been attended with the very best results. The man he (Capt. Wright) was with at Chantilly was with Mannington of Brighton, and he said that treatment was always adopted by Mannington; and he had adopted it with horses that had afterwards stood training.

Mr. SAMSON remarked that Mr. Hunting had evidently taken a lot of pains in the preparation of his paper, for which they all thanked him. (Hear, hear.) The essay offered scope for a long discussion, Mr. Hunting being a difficult man to "get in a corner." (Laughter and "hear.") No doubt sprains did occur when no effort was being made; but they also occurred when big efforts were made, as in getting horses fit for a race, as had happened in his own practice. He (the speaker) could not say that sprains occurred when a big water jump was negotiated; but he knew they occurred over post and rails, as proof of which he related the case of a young mare he was riding hunting, in which the sprain led to the formation of a bony spavin. He fired and blistered her, and gave her three months' rest; and afterwards rode and drove her for nine years. Sprains, to his mind, did occur when a horse made a big effort. He could not see much difference between cotton-wool and a nice seamless bandage put on properly; but rest and comfort were the principal things after a sprain. If they gave people some nice soft liniment to be rubbed in three times a day it would do the horse good, and better satisfy the customer that they were earning their fees. (Laughter.) Rest was the thing, but it did not pay the veterinary surgeon one time out of twenty. He was very dubious about blistering after a sprain; and certainly great harm was done by blistering or firing too early. He would not fire a hunter for a month or six weeks after he had done his hunting, or they would get his legs filled. He had no doubt slow walking exercise did good if they could get people to spend the time on it, but he liked to see the inflammatory action got rid of first. Of course it depended on the horse's skin whether they fired deep or light.

* (See p. 697.)

Mr. PERCY SIMPSON observed that they had a most excellent paper, but one or two things in it struck him as rather contradictory. Mr. Hunting said that sprains were "seldom" caused when the greatest efforts were made; but in another place he said: "They are not common in cart horses though these animals have enormous weights to draw and prolonged efforts at starting them, as in the case of railway shunt horses." In his (Mr. Simpson's) experience that had been a great cause of strained tendons and sub-carpal ligaments, especially in the horses of a firm the exit from whose premises was up a steepish bridge. They altered their exit, and the number of sub-carpal ligaments sprained in their horses, although doing the same work and journeys, decreased to a great extent. Also another firm (brewers) for whom they did business, caused their horses to tackle a steep hill on coming into Maidenhead; and it was noticed that they were constantly falling with sprains of the sub-carpal. They altered their route, and the number of strained sub-carpals decreased to a remarkable extent. The steep roads were good, and not slippery, and he thought the mischief was entirely due to the gradients. When a horse put himself to the collar on starting out he had his muscles in as good order and as well co-ordinated as he would any part of the day.

Then Mr. Hunting said that the greater the effusion the worse the lesion after a sprain. He (Mr. Simpson) was taught that the effusion was the attempt on the part of nature to rep ir the broken tissue, and it was pointed out to them that that effusion contained cells which helped to re-build the injured structures. Of course one did not want that effusion to last long, but a certain amount, he thought, must help to repair the injured tissues. Mr. Hunting said he had never seen sprains of the suspensory ligament in harness horses, either light or heavy; but he (the speaker) thought that class of horse very liable to those sprains, especially in turning or pulling up suddenly.

As to the softening of tissues, the essayist advised hot water for the softening and relaxation of the tissues and easing the pain; but personally he agreed with Captain Wright as to the cotton wool bandaging described by that gentleman. He thought that as soon as the sprain was done was the time to put the cotton wool on, and that they got great benefit from it, apart from any fomentations or cold water applications. If cotton wool was applied carefully on either side of the tendon, so as to make the circumference of the leg as complete a circle as possible, they got great benefit from it. As to shoeing, did Mr. Hunting recommend putting high-heeled shoes on a horse in order to give the tendons rest, or did he think any advantage which might be derived from that was counteracted by the chance of tendons contracting? They had had a most interesting paper, and one worthy of a far larger meeting, and of a more interesting discussion than they had had at present. (Hear hear).

Mr. PAUER thanked the essayist for his very able and lucid paper. He agreed with him that in a great number of cases the predisposing cause of sprain was debility or want of condition. In many cases sprain was no doubt due to a great effort, but in the great majority he thought the cause was want of condition.

As to divided tendons, he had divided the perforans tendon and it had healed and become strong. He had a case of a division of the tendon below the fetlock, which must have happened after the last jump in a drag-hunt. There was a very small wound, but the tendon was perfectly severed. The horse was removed home, and kept in slings between 13 and 14 weeks, the leg being so completely fixed that no movement was possible. He had really no hope of recovery, and at the end of the time there was no improvement in the case at all. The wound healed by "first intention." He made a *post mortem*, and found that the ends of the tendon had united, but that the tissue was very soft and degenerated, and anything but fibrous tissue.

As regarded the treatment, he was a little uncertain now as to whether it was desirable in the first instance to "bring out" the sprain—to use a common expression—or not. He was inclined to think that, if they got to a sprain early enough, the best course was to check effusion by iced bandages and slight pressure, which would make a cleaner job, and undoubtedly leave less thickening. If the case had been delayed some time moist applications and cotton wool pressure bandages seemed to assist.

Mr. WHEATLEY said that, talking about firing a horse's legs, he never had a horse do better than one of his own that broke down when he was running him in a point-to-point race. He fired both his fore-legs—the sheaths had gone; and afterwards he had ridden and jumped that horse in show rings, and driven him in harness, and won with him. As to shoes, if he had got a horse very lame, and he was on his toe from curb or anything of that sort, he should put him on a stable shoe, then his bedding should be so arranged that he does not slip when he has the shoes on. He would do that in preference to putting the horse in slings. He had used stable shoes even 3 inches high.

Mr. MALE said he had been very pleased to hear Mr. Wheatley's remarks about high-heeled shoes, on which he was going to ask a question, as they had in the room two of the greatest authorities on horse-shoeing. Personally, he had found high-heeled shoes very beneficial, in cases of horses perhaps not very valuable, but where the owners wished to keep them to work as long as possible.

With regard to sprain of the hind tendons, he did not think Mr. Hunting mentioned sub-tarsal sprain, which very often caused a good deal of contraction in the hind tendons, and he would like his opinion as to the advantages of tenotomy in those cases. He thought line firing, with a long rest, was the only real remedy; and in sub-carpal sprain puncturing the ligament. He considered the best way of applying cotton wool was in the form of wads on each side of tendon, as mentioned by Mr. Simpson, and it should be applied immediately the horse got home.

Mr. Hunting mentioned split suspensory ligament; and he (Mr. Male) thought that a more common cause of lameness than was usually supposed. The treatment he had found most successful was puncture firing along the course of the suspensory ligament.

The PRESIDENT would like to especially thank Mr. Hunting for bringing forward that paper. He did it almost at a moment's notice, although its discussion had been hanging over for some time. Their Secretary wrote him that they had no paper, and he went to Mr. Hunting, who with his usual kindness at once consented to write one; and they were all indebted to him for bringing forward that very practical and useful paper. (Hear, hear). He did not quite agree with all that Mr. Hunting had said, although in the greater part he was in accord with him. He believed that the want of co-ordination for the moment did frequently lead to strain, but he also agreed with some of the speakers that during an extra effort sprain frequently occurred.

Mr. Hunting said that the rupture of tendons after neurectomy was not due to any curious pathological change, but simply to continuance of the inflammatory process. He (Mr. Porch) rather doubted that. A horse was unnerved, and they saw no pathological change; he went to work, and suddenly they had a rupture of tendons. If they made a post-mortem they found the horse had been lame from navicular or enlargement of the coronet, or some inflammation which had subsided, and yet they had rupture of the tendons after neurectomy. As to bent knees, he did not think he had ever seen a case he had diagnosed of bent knees

being from sprained tendons. In his opinion bent knees had nothing to do with the perforatus or the perforans tendons, but it was due to the extensor muscles.

He thought they had two kinds of curb—one a sprain of the calcaneo-cuboid ligament, and the sprain also of some of the ligaments proceeding down the hocks to the metatarsal bones; and also he thought they had a distention of the sheaths and the bursa where the tendons passed down over the back of the hock, which gave rise to what was said to be curb. They saw horses with a curb hunted for years without any trouble; but he had never seen a case of distension of the bursa that they could work without causing trouble. Also he thought that special conformation was a great source of sprains. Take a horse with a long pastern, and if he had any heavy work to do, especially behind, the chances were that in 90 cases out of 100 he would sprain his tendons. He objected to nothing more than to buying horses for his Company's work with a long pastern. That gave a horse such leverage that when he was given weight to lift he became sprained.

Mr. Hunting did not think blisters of much use, but in his (The President's) opinion they were useful, although he thought the mistake was frequently made of applying them too quickly. It was like firing—he considered that they should wait long enough before firing a horse for sprains; and he did not think anything was better than line firing, and, as mentioned by Capt. Wright, close lines, not too deeply made, were better than wider and deeper lines—of course judging in each case by the thickness of the skin, or the horse would be badly blemished.

With regard to shoeing, no one, he thought, had mentioned, the fact that after inflammation had subsided there was a tendency to contract. He believed that in the first instance a high-heeled shoe frequently afforded good results by allowing the parts to rest, but after the inflammation had subsided he thought a high-heeled shoe a mistake, unless they wanted the tendons to contract. He often removed the heels entirely, and put on a shoe with about 4 inches projecting in front, before firing, and then fired the horse; and it was marvellous how that brought him back in a case of contracted tendons.

Reply.

Mr. Hunting replied on the debate. He thanked those who had spoken for having given the subjects some consideration, and added to their collective experience. As to conformation, he certainly, perhaps, put the sentence rather more strongly in the paper than he should have done, but he still believed that conformation had very little to do with sprains, because one saw sprains in every shape of horse. Years ago he used to think that conformation must have a lot to do with sprains and injuries about the limbs, and he used to amuse himself by going to Tattersall's and looking at cases of curb, spavin, and other lesions and trying to find something common amongst them; but he was totally disappointed, for they existed in every form of leg and joint. If, however, there was one horse more liable to it than another, it was the one with his hind hocks right behind his tail—the conformation of the American trotter. Mr. Porch's experience was valuable, because he had horses put under close attention, and what he said about long pasterns they should accept as true; but long pasterns was not a common conformation. In half-bred Clydesdales, vanners, and that class of horse the difficulty was to get them with sufficient obliquity and elasticity of pastern. Then as to whether great efforts, or slips, caused the most sprains, he did not in his experience remember one single case of a horse spraining himself in making a great effort. Of course they had the fact detailed to them by Mr. Samson, and the account given them by Mr. Simpson, where great efforts were undoubtedly the cause. He would suggest that on an incline there was always more chance of a slip than there was on the level; and it did not follow that because it was an incline the horse did not slip. Mr. Samson's case seemed a little vague, because it was an extraordinary thing for a horse making a big effort to throw a spavin, and especially a spavin following a sprained hock, although it was common for a five-year-old to throw a spavin from a slight slip, or even without one.

Next as to whether effusion was useful or injurious, it was difficult to say exactly, because they could not have a bad sprain without effusion, and the worse the sprain the more effusion. He might be wrong in thinking that those sprains healed badly owing to the amount of effusion; but it was not only the tendons. Had they ever noticed an ordinary cracked heel? If they got a thickened skin and a lot of effusion there was no sign of healing at all while it remained; and he believed that was simply on account of the effusion, which upset all the natural nutritive processes of the part. Then, the more the fibres were pressed apart and the more soft the effusion between the fibres, the weaker the union.

As to bent knees, and deformities in connection with sprains, which were pretty common, he said that a bent knee was due to contraction of the ligaments of the knee. In every case in which a horse rested his knees, whether from muscular weakness or from pain in the feet, they would get bent knees. Let them take an ordinary case of navicular disease, or ordinary corn on both feet, and they would have bent knees, for when two bones were altered in position the ligaments attached to those two bones began to contract. Of the other two deformities he had offered an explanation which seemed to have been accepted. Then there was a reference to sprains following illnesses. He had never seen such a case as that mentioned by Mr. Pauer, but he had seen cases which used to be called rheumatic. He found it difficult to get a sufficient number of cases to compare so that they could deduce any argument. The continental authors devoted a good deal of time to cases such as Mr. Pauer had described, and looked on them as specific infections of the tendons. He had never himself seen a case of such specific infection, and it was interesting to know that they recovered as well as he told them they did.

As to treatment, he did not know that there was a great deal of difference between them. The difficulty was as to the time at which they saw a case. In the Army they were brought at once, but in ordinary practice often a day or two after. He should adopt, in an immediate sprain, Captain Wright's cotton wool treatment. When they had a case in the very earliest stage he should think a cold effusion would be very good, but in no case should it be continued too long, as he thought it really stopped the healing process. As to hot water, it seemed to afford considerable relief to a painful part, and that was all they could say about it. With regard to the high-heeled shoe, when he was in Manchester, some 35 years ago, if a horse fell down and hurt his nose, or whatever else was wrong, the first thing they did was to put on a high-heeled shoe. (Laughter). If it was a leg case, all the faddists in the town would have given evidence against a man who had not done so; but a horse was quite as capable of resting his leg as a man, and he thought the animal was the best judge. In most cases the shoe was not put on the ground, except in the case suggested by Mr. Wheatley; and then, when a horse put his foot on the ground he (Mr. Hunting) should think he wished to God he could put it lower. (Laughter). The horse rested his leg, and no doubt put it in the most favourable position for healing; but the veterinary with his superior knowledge, came and fixed it for him. All

would allow that if they kept the shoe on long they must be doing harm, for the thing most to be avoided was contraction, and the higher they kept the heel certainly the more they favoured contraction.

As to blistering and firing, there seemed a pretty general idea in the room that day that they should not be in a hurry. He himself believed that neither blistering nor firing should be done until the inflammation had subsided and the process of absorption had got well on its way.

With regard to the comparison between ruptured and incised tendons, even a partially ruptured tendon was always a longer job, and accompanied with tremendous swelling and final deformity. If they performed tenotomy they had every chance of getting more inflammation; but incised wounds never caused the same amount of irreparable damage as ruptures. (Applause.)

The meeting closed with a cordial vote of thanks to the President for his conduct in the chair, moved by Mr. Mellett, and seconded by Mr. Coleman.

LIABILITY FOR WORKMEN.

The enclosed circular is being issued in London, and deserves attention.

"At a meeting of Veterinary Surgeons and Master Farriers held on the 30th ultimo at Denison Hall, Vauxhall Bridge Road, Victoria, it was resolved to form a Limited Liability Insurance Company, for the purpose of insuring the men in their employment, shares £1, 2s. 6d. on application, 2s. 6d. on allotment, the remaining 15s. to be called up if considered necessary by the directors, the meeting then agreed to adjourn and to circularise the Profession and Trade to meet at the same place, viz., Denison Hall, on Tuesday evening, 14th May, 7.30 sharp, to appoint a Provisional Directorate, determine the amount of premium to charge per £100, on wages paid, (£1 is suggested) to select Bankers, Trustees, Solicitors and Secretary.

I sincerely trust you will make a point of being present in your own interest and that of the Profession and Trade generally. Yours faithfully,

43, Addison Road North, W. WALTER POPE.

Tuberculosis among Guernsey Cattle.

Despite elaborate precautions bovine tuberculosis has appeared among Guernsey cattle herds. The outbreak will cause a serious loss to the islanders, as hundreds of cattle are exported annually to the United States, where special facilities were afforded owing to immunity from the disease in the past. No horned cattle may be imported into Guernsey except for immediate slaughter, but a special ordinance allows the re-admission of island cattle sent to England for exhibition. There is no doubt the disease has been introduced in this way, and the ordinance in question has been repealed.

COMPARATIVE SUMMARY OF RETURNS—PARASITIC MANGE, IN IRELAND.

	1907	1906	1905	1904
Outbreaks in April	8	6	21	9
Four months	40	33	81	69

DISEASES OF ANIMALS ACTS 1894 TO 1903. SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies. Cases Confirmed.		Sheep Scab.	Swine Fever	
	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Dogs.	Other	Out-breaks	Out-breaks.	Slaughtered *
GT. BRITAIN. Week ended May 4	36	44			24	58			6	63	298
Corresponding week in 1906 ..	17	24			22	45			4	44	238
Corresponding week in 1905 ..	29	40			20	28			9	23	97
Corresponding week in 1904 ..	23	36			29	55			6	27	82
Total for 18 weeks, 1907	408	572			329	758			382	738	3769
Corresponding period in 1906 ..	349	543			389	728			271	405	2046
Corresponding period in 1905 ..	390	557			412	747			614	245	1235
Corresponding period in 1904 ..	361	496			517	962			1004	453	2510
IRELAND. Week ended April 27	..	..	..	..	..	..	..	..	2	..	81
Corresponding Week in 1906 ..	..	..	..	..	..	..	..	..	2	3	27
Corresponding Week in 1905 ..	..	..	..	..	..	1	..	..	2	..	7
Corresponding Week in 1904 ..	..	..	..	..	..	..	..	..	10	1	32
Total for 17 weeks, 1907	1	3	..	..	..	..	..	..	147	48	892
Corresponding period in 1906 ..	2	2	..	..	2	7	..	..	127	16	260
Corresponding period in 1905 ..	2	2	..	..	9	25	..	..	207	25	309
Corresponding period in 1904 ..	2	2	..	..	3	18	..	..	327	63	898

Board of Agriculture and Fisheries, May 7. 1907.

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, May 2, 1907.

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection.

Glanders and the Treasury.

A meeting of the Central and Associated Chambers of Agriculture was held on April 30th at the Surveyors' Institute, Great George Street, Westminster, Lord Desborough presiding.

Mr. B. St. John Ackers introduced the report of the Cattle Diseases Committee, the increase in the weekly returns of outbreaks of sheep scab being shown as follows: 1904, 987; 1905, 589; 1906, 266; 1907, 368. There was a fairly widespread objection to the dipping period, which was fixed by the Orders as from May 15th to August 31st. The committee recommended that it should be from May 15th to September 30th. The committee had been informed by the Board of Agriculture that the Chancellor of the Exchequer had definitely decided that he would not be justified in making a special grant from the Exchequer towards the cost of the proposed operations against glanders. Mr. Asquith appeared to have been greatly impressed with the fact that the law contemplates that compensation for animals slaughtered by local authorities should be paid for by those authorities, and is of opinion that inasmuch as the centres of infection are confined to a few localities only, it is the duty of those especially concerned to take such action as may be required locally, rather than that they should be relieved of responsibility by the Government. The committee entirely dissented from the Chancellor of the Exchequer's conclusion.—*Western Mercury.*

Meat Inspection by the Police.

It has been pointed out more than once that the difficulties of meat inspection in Cardiff arise almost entirely in connection with meat which is slaughtered outside the borough. There are no private slaughter-houses in the town and inspection at the public abattoirs is a comparatively easy matter. Dr. R. Pritchard, medical officer of health of the Llandaff and Dinas Powis rural district, which adjoins Cardiff, has recently made a suggestion for increasing the efficiency of the inspection in rural districts. He points out that the county police already take samples for analysis under the Sale of Food and Drugs Acts and administer the Contagious Diseases (Animals) Acts, and he proposes that they should visit the slaughter-houses on their beats and inspect any carcase that may be there. Dr. Prichard admits that the ordinary policeman is not a trained meat inspector, but he thinks "that a lesson or two from the county medical officer of health would be enough to enable him to distinguish diseased meat from what is not."—*The Lancet.*

Veterinary Inspectors Fees—Aberdeen.

At a meeting of the Executive Committee of the Aberdeen County Council in the County Hall, Aberdeen, on Friday, April 26, Mr. Gordon, of Newton, convener, presiding:—

A communication was read from a meeting of veterinary inspectors at which it had been resolved that the time had come when their scale of payment should be revised and made harmonious with the fees paid by neigbouring counties to their inspectors. A revised scale was enclosed for the consideration of the committee. The clerk said that on receipt of the commudication he wrote to all the counties for their scale of fees, and he suggested that a sub-committee be appointed to confer with the veterinary inspectors on the subject and report to the Executive

This was agreed to, and the convener, the vice-convener, Messrs. Durno, Cook, Runciman, and Smythe were appointed the sub-committee.—*Evening Express.*

Veterinary Surgeon's Action.

On Tuesday, April 30th, Judge Adams gave his decision in the case. His Honour said there was a great deal of heat between the parties in this case, and where there was heat there was always exaggeration. Some time since Mr. Winter and Lord Fermoy happened to be at a horse sale in Cork. Lord Fermoy wanted two carriage horses, and the Court was convinced he asked Mr. Winter to bid for a pair that were put up. This was a main point in the case, and His Honour entirely believed the plaintiff's statement about it. Nothing was more natural than that Lord Fermoy should turn to his veterinary surgeon, and ask him to bid for him. Lord Fermoy stood by Mr. Winter's side on the horses being knocked down to Mr. Winter. He named his principal; the horses were entered to Lord Fermoy. He took them away, and three or four days afterwards he paid for them. His Honour thought Mr. Winter's memory was at fault as to other details. The Court did not believe any contract was made between Lord Fermoy and Mr. Winter as to the latter taking over the horses if they did not suit. His Honour was convinced that no fee of £2 10s. was mentioned. He thought that Mr. Winter did a real but trifling service, and that he was entitled to a small fee. Decree for two guineas and cost of suit.—*Irish Field.*

Terrier as Witness.

CASES IN WHICH A DOG REQUIRES DAINTY NURSING.

An action of some interest to veterinary surgeons and others was heard at Brompton Court, when Miss Gladys Singers-Bigger, of Evelyn Gardens, S.W., sued Mr. Edward Sewell, M.R.C.V.S., of Thurloe Place, South Kensington, for £20 and £15 damages for being deprived of the Society of a pet Yorkshire terrier, and £5, its value.

Mr. Hews Singers-Bigger, who sued as his daughter's next friend, said the £16 for which defendont counterclaimed for attendance on and keep of the terrier was in some of its items grossly exorbitant. Witness said he knew a good deal about dogs, and considered 15s. for the keep of a small dog excessive. Defendant also sought to recover 30s. for treating the little dog for distemper, which it caught at his infirmary. Before the action was started witness's solicitor tendered defendant £5 in settlement of his unreasonable bill for £10 odd, but it was not accepted. "I don't know whether the dog is alive or dead," added plaintiff.

Judge Selfe: Didn't I hear his voice in court? (Laughter.)

Mr. Freeman Barrett (for the defence): He is here, sir.—The dog's muffled bark was heard from the inside of a large basket at the rear of the court, and the judge suggested, amid general laughter, that it was impatient to tell its own side of the story. A special usher was told off to nurse the animal after the judge had patted its head and stroked its glossy coat.

Mr. Barrett (to plaintiff): Don't you know that almost every puppy gets distemper? I put it to you that distemper is as common to dogs as measles is to children?—I never had it. (Laughter).

Mr. Barrett: (passing the kicking puppy over to witness): You can see that defendant has made a good job of it?—It seems all right. (Laughter.)

Prof Hobday, F.R.C.V.S., and examiner to the Royal College, stated that his charge for a dog of the Yorkshire's size would have been 7s. a week, or 1s. a day. He would have charged 10s. 6d., as defendant did, for setting the animal's shoulder, but half the fee for resetting—not 10s. 6d., Mr. Sewell's charge.

Mr. Sewell, the defendant, said that the dog had suffered from distemper for about five weeks. It had

been fed on Brand's Essence, etc., and given medicine for about six weeks. For the whole of this treatment he had charged 30s. There was not a dog suffering from distemper in his infirmary, and the animal in question could not have contracted the disease there.

Mr. John E. Still, M.R.C.V.S., of Kingston-on-Thames, said that he had about 600 dogs a year at his place. If one of the dogs became ill, he thought 7s. or 8s. a week extra would be a reasonable charge. He thought defendant's charge of 15s. a week fair and reasonable in the circumstances.

Mr. Henry Scott, M.R.C.V.S., said he had considered the account carefully, and he also thought the charges fair and reasonable.

His Honour, summing up, informed the jury that they had to determine what would be a reasonable charge for keeping the dog without the distemper for 68 days, and then they had to consider whether the animal contracted the disease in the infirmary or whether the distemper was already in its system when it went there.

The jury found for the defendant (Mr. Sewell) for £6 12s.

Personal.

Mr. SIDNEY VILLAR is now in Lucerne.

Mr. H. C. WILKIE has returned to Brussels for the present.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, May 7.

Supernumerary Capt. Howard C. Welch to be Captain. Dated 8th May, 1907.

The undermentioned officers arrived from India on May 1st. in Transport "Assaye."

Captains A. F. Deacon and E. C. Orton on completion of tour of foreign service.

Lieutenant S. F. G. Pallin on six months sick leave of absence.

Obituary.

JOHN GEORGE HOILE, V.S., Lympne, Hythe, Kent.

Mr. Hoile died on the 7th May at the age of 75.

CORRESPONDENCE.

THE QUESTION OF DIAGNOSIS.

Sir,

In a current issue of *The Veterinary Record* I have read with much interest your pertinent observations on "diagnosis" and its difficulties. I am sure it is not the least part of your devoted and disinterested services to be good enough to remind your readers of their duty to the profession as well as to themselves, and for this every member of the profession should feel deeply grateful. If there be one subject of vital interest upon which the profession has maintained an unbroken silence it is, I think, the subject of the editorial to which I have referred; so little is heard of the difficulties of diagnosis that the individual practitioner might reasonably conclude he alone is in the unfortunate position of being unable to arrive at once at a precise and accurate diagnosis in each case presented to him.

One thing I think is clear, viz., that the invidious position in which the profession, and particularly its younger members, are placed with regard to diagnosis and its sometimes insuperable difficulties is the direct consequence of illogical dogma and false claims to knowledge, and like many other evil consequences it is in large measure an inheritance of the past.

There was a time, and it is not so very remote, when in the scheme of veterinary education the teaching of pathology had no place. The student of that period studied the art of veterinary medicine, his degree qualified him to practice it. So far as the science of medicine was concerned every member of the profession was a law unto himself. One thing he learned was to put his trust in drugs—it is not the object of my purpose to show how far this faith in drugs is responsible for their popular abuse at the present day—for every group of symptoms he had a name, and for that name—which for convenience may be termed disease—he had a sovereign remedy. This was the alpha and the omega of his practice. Like men in other walks of life, he was to some extent the creature of circumstances, and insensibly perhaps, but not the less surely, he acquired the attitude of mind which is summarised in the terms dogmatism and omniscience, and the assumption of infallibility accordingly.

It is, I assure you, in no uncharitable spirit that I point to the old school of veterinary medicine as the primary cause and source of the anomalous and enslaved position from which I am glad to assure you many of the younger members are with relentless courage trying to force themselves to-day. I recognise how securely the old school laid the foundations, and how much its teaching and influence has contributed to the edifice of veterinary medicine; how worthily and devotedly many of its disciples have exerted themselves in the cause of the profession, and how much has been realised of that which the earnest spirits of the past had dreamt and longed for: and yet I am, however unwillingly, forced to the conclusion that the evil the old school has done has lived as well as the good.

In our upward and onward course, I look upon the younger men as the allies of progress. I am confident the salutary influences of a wider and surer basis of scientific training will eventually consign illogical dogma and claims to omniscience to their proper place, and foster that scientific mental attitude which is always ready to recognise the limits of possibility and at same time frankly to define them.—Yours faithfully,

A MEMBER.

RE MAGISTERIAL DICTA.

Sir,

Ought we not, instead of blaming the magistrates, blame our own cloth, for it is generally from the veterinary surgeons giving evidence for the prosecution that the magistrates take their cue.

Most of us have been astonished at the *awful suffering* said to be caused by slight defects in the animals by some veterinary surgeons for the prosecution.—Yours faithfully,

VERITAS.

THE BOOK OF RECEIPTS (BEASLEY). A Veterinary Materia Medica, with prescriptions illustrating the employment of drugs in general use for the treatment of the more common ailments of animals. Also a Photographic Formulary; a Pharmaceutical Formulary; together with numerous chemical and other tables likely to be of use to pharmacists and manufacturers. Rewritten by E. W. LUCAS, F.I.C., F.C.S. 11th edition, Cr. 8vo., cloth, lettd. 418 pp., 8 plates, 13 p. index, 16 p. publishers' advts. 7/6 net. J. & A. Churchill, 7 Gt. Marlborough Street, W.

A SYNOPSIS OF THE BRITISH PHARMACOPŒDIA (1898) by H. WIPPELL GADD, F.C.S., Lecturer on Pharmacy at the University College, Exeter. Sixth edition, containing a synopsis of the Poison Laws of Great Britain and Ireland. 32mo., 228 p.p., cloth, lettd. 1/- net. Ballière, Tindall & Cox.

THE CINEMATOGRAPH IN SCIENCE, by C. URBAN, F.Z.S.

COMMUNICATIONS AND PAPERS RECEIVED—Mr. F. E. Place, Frank F. Euren, H. Leeney, S. Wharam, J. R. McCall, H. Begg, H. H. Jeffries, A. A. Donnelly, F. J. Dunning, W. Jowett. Dr. Neitner.

City of Newcastle-on-Tyne Report on Tuberculosis, *The Hereford Mercury*. May 4.

Messrs. T. F. Prime, L. McLaren, J. A. Todd, Walter Burt, H. J. Dawes, S. Wharam, F. E. P.

The Rand Daily Mail, *The News of the World*. May 11.